

site, lowermost linear-lanceolate, although appearing as though connate, the blade not clasping the stem, 1–2 cm. long, middle leaves much shorter, oblong, the upper obovate, rounded or emarginate, 2–5 mm. long; flowers few on slender erect ebracteate glandular-pubescent pedicels; calyx unequally cleft, the two lower sepals distinct, 4–6 mm. long, oblong, obtuse and emarginate; the three upper sepals joined for one-third of their length or more, the 2 lateral shorter and narrower, the middle lobe broadly oblong, emarginate; corolla tubular, the tube somewhat curved, quadrate, exceeding the calyx, 6–8 mm. long, pilose with gland-tipped hairs externally, a few simple hairs below the stamen-insertion within, 5-lobed, yellow, its lobes 1–2 mm. long, the upper pair of lobes joined nearly to the tip, yellow, the lower three free to the base, white; stamens 2 on short slender filaments, inserted about midway on the tube below the upper pair of petals, the anthers versatile, the sacs slightly unequal; ovary inserted on a thin annular disc, pyriform, 2–3 mm. long, style 1.5–2 mm. long, stigma asymmetrically 2-lobed, the shorter lobe folded against the base of the longer; capsule pyriform, about equaling the persistent calyx; seeds oblong, longitudinally ribbed and with indistinct horizontal ribs.

In shallow water on the southwest margins of Boggs Lake, Lake County, California, *Mason and Bacigalupi* 14,544, June 8, 1953 (type, UC 985639; Kelseyville [?] *Blankenship*, April 26, 1923, and May 25, 1929 (JEPS); Boggs Lake, *Blankenship*, May 21, 1929 (JEPS).

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A NEW SPECIES OF *HELIOPSIS* FROM BAJA CALIFORNIA, MEXICO

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In 1951, a taxonomic study was begun on the genus *Heliopsis* of the Compositae. During the course of this study a previously undescribed species was discovered.

***Heliopsis rubra* sp. nov.** Herba perennis erecta vel ascendens, 50–75 cm. alta; caulis ad basem versus glaber supra, sparse pubescens; folia rhomboideo-deltoida, integra vel dentibus acutis mucronatis, sparse dentata, 3.5–5.0 cm. lata, 6.5–12.0 cm. longa; petioli hirsuti; capitula 1.0–1.5 cm. lata, 1.0–1.8 cm. alta; involucria 2-seriata, phyllaria adpressa; radii 8–10, aurei; corollae disci flavae; paleae oblongo-lanceolatae rubrae eae senescentes fulvae; radii achenia triangularia, 4.0–5.0 mm. longa, irregulariter tuberculata; achenia disci quadrangularia.

Erect or ascending biennial or perennial herb in mountainous regions, annual in plains regions, 50–75 cm. tall, branched nearly to woody base; stems 0.5–3.5 mm. thick, glabrous below, sparingly pubescent above, previous years' stems glaucous, periderm flaking with age; axils of lateral branches and leaves densely tomentose; internodes 3.5–6.5 cm. long;

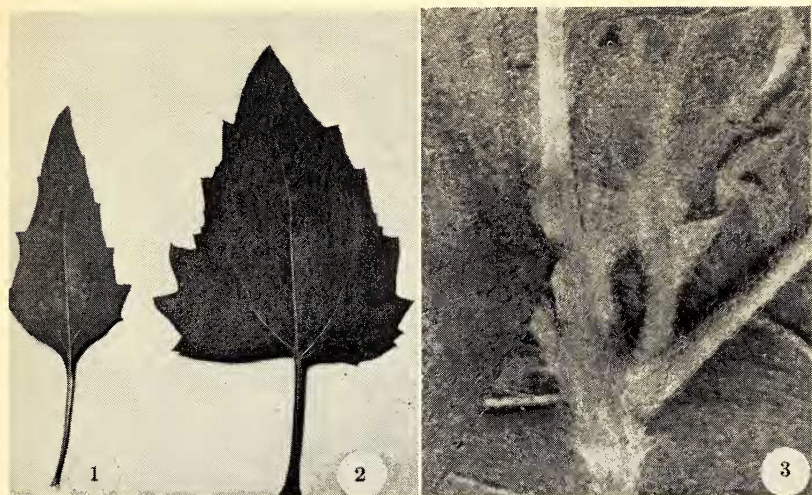


FIG. 1. *Heliopsis parvifolia*, cauline leaf, reduced $\frac{1}{2}$. FIG. 2. *Heliopsis rubra*, cauline leaf, reduced $\frac{1}{2}$. FIG. 3. *Heliopsis rubra*, pubescence of leaf axils, greatly enlarged.

leaves 6.5–12.0 cm. long, 3.5–5.0 cm. wide, firm, light green below, darker green above, petioles slender, 3.5–5.5 cm. long, tomentose, lower surfaces of blades glandular hirsute, densely strigose on the veins, upper surface glandular hirsute, rather scabrous, blades deltoid-rhomboid, apex acuminate, base attenuate to obtuse, margin nearly entire or sparingly dentate, teeth acute and mucronate; heads (excluding rays) 1.0–1.5 cm. wide (in fruit); involucre 2-seriate, phyllaries appressed, the outer unequal, oblong to oblong-lanceolate, apex acuminate to acute, densely velutinous to sericeous on the outer surface extending downward onto the upper limit of the peduncle; the inner phyllaries shorter and more acuminate; rays 8–10, 14–21 cm. long, 6–8 mm. wide, 13–15 nerved, when young yellow below, reddish-orange above, becoming dull yellow with conspicuous greenish, sparingly pubescent nerves below, and golden yellow above at maturity; disk corollas yellowish, lobes sparingly pubescent at the apex, tube 4.0–4.5 mm. long (at anthesis), obtuse; pales lanceolate-oblong to spatulate, glabrous, red at apex when young, becoming brownish-orange with age, membranaceous along the margins, 7.0–7.5 mm. long, 1.5–2.0 mm. wide; ray achenes triangular, outer surface curved, slightly puberulous when young, 4.0–4.5 mm. long, 2–3 nerved, surface irregularly tuberculate; disk achenes quadrangular, sharply so at the apex, rounded at the base, epappose or slightly ridged, faintly nerved on the angles.

Type. Baja California, Mexico: Distrito del Sur, El Pulpito del Arroyo de las Parras, Sierra de la Giganta, lat. $25^{\circ}58'$ N., long. $111^{\circ}29'$ W., north-facing slopes, altitude 250 m., 7 October 1951, *Annetta Carter* and *Louise Kellogg 3158* (UC 924984; isotype deposited at Indiana University).

Additional specimens examined. BAJA CALIFORNIA. Distrito del Norte:



FIG. 4. Type specimen of *Heliopsis rubra*.

between Pozo Aleman and Barril, *Wiggins* 7841 (GH, MICH, US, UC); east of Pozo Aleman near Calmalli, *Epling* and *Robison* s. n. (UC); near Arroyo Calmalli, *Purpus* 221 (UC, F); 4.2 km. south of El Arco, *Carter*, *Kellogg*, *Alexander* 1925 (UC). Distrito del Sur: near Mesquital Grande,

Haines & Stewart s. n. (UC); near Tres Virgenes, *Shreve 7049* (MICH); near San Ignacio, *Wiggins 5432* (GH, MICH, US), *Carter, Alexander, Kellogg 1952* (UC), *Shreve 7049* (US); San Aqueda [Santa Aguada], *Palmer 230* (US); San Gregorio, *Brandegee s. n.* (US); Arroyo Hondo, *Carter, Kellogg 2022* (UC); north of San Xavier, *Shreve 6947* (MICH, US), *Wiggins 7748* (US); near Puerto Escondido, *Carter, Kellogg 2866, 2891* (UC); Agua Verde Bay, *Collins, Kearney, Kempton 220* (US); Santa Margarita Island, *Brandegee s. n.* (UC); near Santa Anita, *Nelson & Goldman 7402* (GH, US); near San Jose del Cabo, *Brandegee 309* (UC), *Purpus s. n.* (UC); east of Cabo San Lucas, *Carter, Alexander, Kellogg 2271* (UC).

These collections have, in most instances, previously been identified as *Heliopsis parvifolia* A. Gray, which undoubtedly is the nearest relative of *Heliopsis rubra*. Some of the distinguishing differences between the two species are as follows:

H. parvifolia

1. Axils of lateral branches and leaves glabrous or sparingly pubescent.
2. Cauline leaves deltoid-lanceolate or rhomboid-lanceolate, approaching deltoid-ovate (fig. 1).
3. Leaf surfaces glabrous to sparingly pubescent.
4. *Apex of the pales yellowish, dull brown at maturity.*
5. *Achenes brownish-black, rugulose; ray achenes 4.0-5.0 mm.*

H. rubra

1. Axils of lateral branches and leaves densely tomentose (fig. 3).
2. Cauline leaves deltoid-rhomboid (fig. 2).
3. Leaf surfaces strigose.
4. *Apex of the pales red, brownish-orange at maturity.*
5. *Achenes tan to dark brown, irregularly tuberculate; ray achenes 7.0-7.5 mm. long.*

Heliopsis parvifolia has a general geographic distribution from south-central New Mexico to southeast Arizona, south to the state of Durango, Mexico, and east to the state of Tamaulipas, whereas *H. rubra* is restricted to the peninsula of Baja California.

According to Annetta Carter (correspondence), who has collected in the vicinity of the type locality on several occasions, this *Heliopsis* is more frequent in mountainous areas than on the plains. In the mountains it usually occurs on north-facing slopes or breaks in vertical canyon walls. In years of good late summer rains it may be abundant in full sun on open plains, while in poor years these areas support little or no annual vegetation and may be covered with drifting sand.

An attempt was made in the spring of 1952 to germinate seeds from herbarium specimens (*Carter 1952*), but only one seed germinated. The plant was grown and observed in the research field at Indiana University during the summer. The chromosome number was found to be $n = 14$, the same as for *H. helianthoides* (L.) Sweet, *H. parvifolia* A. Gray, and *H. annua* Hemsley.

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